Abstract

The present invention relates to the field of electrochemical cells and fuel cells, and more specifically to polymer-electrolyte-membrane fuel cells (PEMFC) and direct methanol fuel cells (DMFC). It is directed to catalyst-coated ionomer membranes ("CCMs") and membrane-electrode-assemblies ("MEAs") that contain one or more protective film layers for protection, sealing and better handling purposes. The one or more protective film layers are attached to the surface of said catalyst-coated membranes in such a way that they overlap with a region of the passive non-coated ionomer area, and with a region of the active area that is coated with a catalyst layer. Furthermore, the present invention discloses a process for manufacture of CCMs and MEAs that contain protective film layers. The materials may be used as components for the manufacture of low temperature fuel cell stacks.